

REMARKS

Claims 10-14, 31-34 and 36-38 have been examined. Claims 10, 31, 36, 37 have been amended. Reconsideration of the claims as amended is respectfully requested.

The Drawings

The drawings have been objected to under 37 CFR 1.83 for not showing the "top surface" and "the bottom" surface. This rejection is respectfully traversed. As set forth on page 10, lines 15-16 and in Figs. 1 and 2, "Plate body 12 includes a top or front surface 16 and a bottom or rear surface 18." Because the drawings clearly show such surfaces, it is respectfully requested that this rejection be withdrawn.

Claim Objections

Claims 10-14, 31-34 and 36-38 have been objected to for using the terms "top" and "bottom" surfaces." This objection is respectfully traversed. As described above, the terms "top" and "bottom" surfaces is clearly set forth in the specification. Hence, it is respectfully requested that this objection be withdrawn.

Claim Rejections - 35 USC 112

Claims 10-14 and 36-38 have been rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. More specifically, the office action refers to the use of the limitations "generally conical cavity" and a "dome shaped cavity." Applicants respectfully disagree that one of skill in the art could not determine that the apertures have these shapes based on the drawings and the shape of the mandrel. However, in order to expedite prosecution, independent claim 10 has been amended to refer to the cavities in the aperture as a flared portion and a tapered portion. Support for such language may be found at, for example, page 10, lines 18-25. Hence, this rejection is overcome.

Claim rejections - 35 USC 103

Claims 31-34 have been rejected under 35 USC 103(a) as being unpatentable over Humberstone in view of East. This rejection is respectfully traversed in part and overcome in part.

In Applicants' previous response, Counsel set forth why claim 31 was distinguishable over the cited art because of how the liquid moved through the apertures. In response, the present office action recites that "applicant's argument is not commensurate in scope with the claimed invention. . . . [C]laim 31, as presently written, is not limited to liquid entering into a convex portion and then moving through a conical portion."

In order to further clarify this distinction in the claims, claim 31 has been amended to recite that "the upper portion is tapered in a direction from the top surface to the bottom surface and intersects with the lower portion which flares outward such that when a liquid is supplied to the top surface and the aperture plate is vibrated, liquid passes through the upper portion and is ejected through the lower portion as liquid droplets." Because the East patent describes a nozzle that operates based on a pressurized liquid forced through the nozzle, its combination with the Humberstone patent is improper. Hence, claim 31 as now amended is distinguishable over the cited art. As such, it is respectfully requested that the section 103 rejection of claims 31-34 be withdrawn.

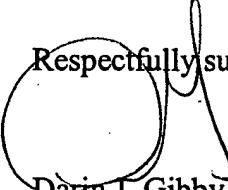
CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

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Amtd. dated May 5, 2004  
Reply to Office Action of March 11, 2004

PATENT

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 303-571-4000.

Respectfully submitted,  
  
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